TITLE OF THE INVENTION

HOUSEHOLD ACCOUNT BOOK MANAGEMENT APPARATUS AND HOUSEHOLD ACCOUNT BOOK MANAGEMENT SYSTEM

FIELD OF THE INVENTION

The present invention relates to a management of money information in a variety of forms such as money information being transmitted via a network and money information in an IC card and a prepaid card.

BACKGROUND ART

When purchasing goods, instead of paying in cash including coins and bills, the payment can be performed through a card. Further, in these days, it is conceived to mount an IC on a card and to store cash information (hereinbelow called as money information) in the IC through which payment is performed. Still further, in response to widespreading of internet, a system is conceived in which a shop is opened on the internet and sales of goods are performed through the internet.

As has been explained above, since money shows a variety of forms such as cash including coins and bills and money information stored in an IC, it is becoming difficult to prepare a household account book based on the income and expenditure of only cash until now.

With regard to preparation of a household account book, for example, JP-A-1-74671 discloses an art in which receipts are read through an OCR and data read from the receipts are totaled. Further, JP-A-4-245596 also discloses an art in connection with preparation of a household account book in which a writing device for storing dealings information in a memory medium is connected to each ECR installed in respective shops, and a processing machine to which a reading device for reading out dealings information from the memory medium is installed at respective customer's homes, and wherein through unifying standards with regard to such as kinds of dealings information to be written in the memory medium and memory format, even when shopping is performed at a plurality of different shops, the dealings can be stored in a single memory medium, thereby the preparation of the household account book based on the dealings information is facilitated.

DISCLOSURE OF THE INVENTION

However, the above mentioned conventional art relates to the preparation of the household account books based on the data read from a single medium such as receipts and memory medium, and nowhere discloses handling of money information in a variety of forms.

Further, when money information is read from a

variety of media, there arises a problem that overlapping data are possibly read in.

Still further, when a plurality of cards such as IC cards are owned by a single person, money information is possibly required to be moved between the IC cards, however, since such money information movement does not relate to the income and expenditure to and from the household account concerned, it is necessary to omit such money movement information from the household account book and to notify the same as the movement between the IC cards.

The present invention is achieved in view of the above problems, and an object of the present invention is to provide a household account book management apparatus which permits to manage money information in a variety of forms all together.

The present invention which achieves the above objects is characterized, in that the household account book management apparatus comprises an input unit which inputs account data, a data reading device which reads out account data stored in an IC card, a display device which displays account data as a household account book, a memory unit which stores account data for displaying on the display device, and a processing unit which converters the account data inputted from the input unit and the account data read out from the data reading device into a predetermined

format and stores the same into the memory unit.

Further, the household account book management apparatus according to the present invention which achieves the above objects and comprises an input unit which inputs account data, a processing unit which processes the input account data, a memory unit which stores the result processed by the processing unit, and a display unit which displays the account data stored in the memory unit as a household account book, is characterized in that the processing unit includes an overlap judgement unit which judges an overlap between the account data inputted from the input unit and the account data entered in the memory unit in a form of household account book and stores the account data in the memory unit based on the overlap judgement result.

Still further, the present invention which achieves the above objects, is characterized in that terminals of financial institutions, terminals installed in shops and terminals installed in homes are connected via a network, and the home terminal is provided with a control unit for receiving an account data from terminals of the financial institutions and a memory unit which stores the account data in a form of household account book, and judges an overlap between the account data inputted from the control unit and the account data stored in the memory unit

and stores the inputted account data in the memory unit based on the judgement result.

Moreover, the household account book management system according to the present invention which achieves the above objects and in which a plurality of terminals are connected via a network and at least one terminal is provided with a household account book management apparatus which displays the account data inputted via the network in a form of household account book, is characterized in that the household account book management apparatus is inputted the account data of a dealing performed in connection with the data displayed in a form of household account book via another terminal connected to the network and displays the data inputted from the other terminal as the account data of the dealing performed in connection with the data.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a diagram showing a constitution of an entire system;

Fig. 2 is a diagram showing a constitution of a management unit for a home use terminal;

Fig. 3 is a diagram showing a display example when performing a read out processing;

Fig. 4 is a diagram showing an example of an electric receipt which is to be transmitted via a

network;

Fig. 5 is a diagram showing a display example when an estimated expense item is modified;

Fig. 6 is a diagram showing a display example of account data in a bank account;

Fig. 7 is a diagram showing a display example of a household account book;

Fig. 8 is a diagram showing a display example when there exists an overlap in account data;

Fig. 9 is a diagram for explaining a processing in an overlap checking unit;

Fig. 10 is a diagram for explaining a processing in an overlap checking unit;

Fig. 11 is a diagram showing a display example of a household account book;

Fig. 12 is a diagram showing a processing in a main processing unit;

Fig. 13 is a diagram showing a processing in an account data reading unit when reading out data from an IC card control unit and a prepaid card control unit;

Fig. 14 is a diagram showing a processing in a data reading unit when reading out account data from a bank account file and an assets file;

Fig. 15 is a diagram showing entire processings in a data reading unit;

Fig. 16 is a diagram showing a processing in a

data analysis unit;

Fig. 17 is a diagram showing a processing in a reading out unit when reading out electronic money which is to be transmitted by a network;

Fig. 18 is a diagram showing entire processings in a data reading unit;

Fig. 19 is a diagram showing a processing in a data reading out unit when inputting account data from an input unit;

Fig. 20 is a diagram showing a processing in a data analysis unit;

Fig. 21 is a diagram showing a processing in an overlap checking unit;

Fig. 22 is a diagram showing a processing in a difference component entry unit;

Fig. 23 is a diagram showing a processing in an estimation checking unit;

Fig. 24 is a diagram showing a processing in an estimation use data file conversion unit;

Fig. 25 is a diagram showing a data inquiry processing;

Fig. 26 is a diagram showing an example of data analyzed result in an electronic receipt;

Fig. 27 is a diagram showing a processing at a shop terminal;

Fig. 28 is a diagram showing a refund processing at a shop terminal;

Fig. 29 is a diagram showing a receipt design processing at a shop terminal;

Fig. 30 is diagram showing a receipt preparation processing at a shop terminal;

Fig. 31 is a diagram showing a receipt issuance processing at a shop terminal;

Fig. 32 is a diagram showing an outline of a home use terminal;

Fig. 33 is a diagram showing a display example when performing an inquiry;

Fig. 34 is a diagram showing a display example for explaining an inquiry;

Fig. 35 is a diagram showing a processing when performing an inquiry;

Fig. 36 is a diagram showing a system constitution when performing an inquiry through an internet;

Fig. 37 is a diagram showing a processing when performing an inquiry through an internet;

Fig. 38 is a diagram showing a processing when performing an inquiry through an internet;

Fig. 39 is a diagram showing a processing when performing an inquiry through an internet; and

Fig. 40 is a diagram showing an example of a unified format which is converted at a data analysis unit.

BEST EMBODIMENTS FOR PRACTICING THE INVENTION

Hereinbelow, the present invention will be explained with reference to the drawings.

Fig. 1 shows a basic constitution of a household account management system. A home use terminal 100 is connected to terminals 121, 131, 141 of banks serving as financial institutions via a leased line or a telephone line 160 and to a shop terminal 150 via an internet 170. Further, in the present embodiment, five kinds of moneys including account of financial institution, IC card type money information, cash, prepaid card or money note certificate and money information via a network are handled, however, money information other than above such as even real restates and stock certificates can be handled likely by manually inputting account data by preparing an asset file or by acquiring an account data via a network.

Bank accounts 123, 133 and 143 are ones which are opened in connection with bank account files 122, 132 and 142 at respective banks. The bank terminals 121, 131 and 141 are bank terminals of respective banks or other financial institutes, manipulate money information stored in the respective bank accounts and perform movement of money information between the bank accounts and management with regard to reception and payment of money and account data via the signal line

160. ATM terminals in the city are equivalent to the above terminals.

The shop terminal 150 can perform sales of goods while opening the shop on the internet.

Now, the home use terminal 100 will be explained. The home use terminal 100 is constituted by an account control unit 101, an input unit 102, a display unit 103, a managing unit 104, a data reader 105, an IC card control unit 106, a prepaid card control unit 107 and a memory device 110.

The account control unit 101 is for a home banking and is constituted by a modem and a control program for accessing to own bank account via a telephone line. Accordingly, via the account control unit 101 money information exchange with the accounts in the financial institutes and data exchange with the shop terminal 150 can be performed. Further, when the IC card control unit for issuing an IC card and the prepaid card control unit for issuing a prepaid card are connected to the signal line 160, the account data are taken into the home use terminal 100 via the account control unit 101. The IC card control unit 106 reads the money information stored in the IC card mounting an IC chip and performs writing the same. With this IC card control unit 106 movement of money information between IC cards and between accounts of financial institutes and IC cards can be performed.

Further, the account data read by the IC card control unit 106 are transferred to the managing unit 104. The prepaid card control unit 107 reads money information from a prepaid card and transfers the same to the managing unit 104 as account data. The input unit 102 is one to which a user inputs data with regard to expenditure and income of cash which are not converted into money information such as in an IC card and in a network, and is represented by such as a key board and a mouse. The data reader 105 is for reading information mentioned on such as a receipt and converting the same into money information. The money information read by the data reader 105 is transferred to the managing unit 104 as account data. The managing unit 104 collects and totals the account data transferred via the input unit 102 and the account control unit 101 to prepare a household account book. The household account book prepared by the managing unit 104 is displayed on the display unit 103. The memory device 110 is constituted by an account data file 111, a household account book file 112, a verification file 113 and an estimation use data file 114. Further, the contents of the respective files will be explained together with the managing unit 104.

Fig. 32 shows an outline of the home use terminal 100. In the home use terminal 100, the input unit 102 and the display unit 103 are integrated and the data

inputting and operation thereof are performed by hand writing with a pen. In the main body thereof, the IC card control unit 106 and the prepaid card control unit 107 for reading data respectively such as in IC cards and prepaid cards are built in, and at the side face of the main body an opening for inserting such as an IC card and a prepaid card is provided. Further, the home use terminal 100 is provided with terminals for connecting with the bank terminals 121, 131 and 141 and with the shop terminal 150, and provided with a terminal for connecting with the data reader 105 such as an OCR.

Fig. 2 shows a constitution of the managing unit 104 in the home use terminal 100. The managing unit 104 is constituted by a data read out unit 201, a data analysis unit 202, an overlap checking unit 203, a difference entry unit 204, an estimated portion checking unit 205, an automatic dealing unit 206, an estimation use data file rewriting unit 207, a totaling unit 208, a total display unit 209 and a main processing unit 210.

The main processing unit 210 is for controlling these respective units and performs the processings as shown in Fig. 12.

The main processing unit 210 stands by until respective processings 1201 and 1202 are started by the user. When the user starts a certain operation at

the processing 1202, either data read out at the processing 1203, estimated portion check at the processing 1204 or data reference processing at the processing 1205 is performed depending on the operation content.

At the data read out processing 1203, the data read out unit 201 reads out the data in IC cards and prepaid cards and account data being sent via a network, and by making use of the estimation use data file 114 in the memory device 110 the data analysis unit 202 converts the read out account data into a unified format. Account data which can not be converted here are entered in the verification file 113. The account data converted into the unified format is judged at the overlap check unit 203 whether the same overlaps with already entered account data in the household account book file 112 and non-overlapping account data are entered into the household account file 112 with the difference entry unit 204.

At the estimated portion check processing 1204, the account data entered in the verification file 113 are converted into a unified format while performing checking by the user and are judged at the overlap check unit 203 whether the same overlaps with already entered account data in the household account book file 112, and non-overlapping account data are entered

into the household account book file 112 with the difference entry unit 204.

At the data inquiry processing 1205, when "household account book display" is selected by the designation by the user, the account data are read out from the household account book file 112 and the read out account data are displayed on the display unit 103 while separating between expenditure and income, and when "inquiry" is selected, such as account data for every input means entered in the household account data such as of bank account transferred via a network are displayed.

Hereinbelow, operations of respective units for every processing will be explained in details.

For the first time, the data read out processing 1203 will be explained.

The account data are stored either in a file of a bank, in an IC card or a prepaid card, or are carried by the user in a form of cash or a receipt. Accordingly, the account data are inputted into the household account book management system either via a network or via inputting by the operator. Therefore, the data read out processing is performed at the following timings.

(1) When a card is inserted in such as the IC card control unit 106 and the prepaid card control unit 107 (Fig. 13).

(2) The bank account state is confirmed at a predetermined timing, and when a charging to or a withdrawal from the bank account is confirmed or when the asset file is updated (Fig. 14).

(3) When a receipt is received via a network (Fig. 17).

(4) When icons of such as a receipt, an asset file and a bank account file are superposed on the icon of the household account book by the user.

(5) When menu "entry" is designated after an icon such as a receipt, an asset file and a bank account is selected.

Fig. 3 illustrated the above case (4). The bank accounts 123, 133 and 143 and a receipt are displayed on the display screen. The icons for the bank accounts 123 and 133 are added of a saw tooth mark which represents that the account state can be confirmed via a network based on a home banking agreement.

Further, on the display screen the receipt inputted via a network is illustrated. In this instance, through an operation of dragging the bank account icon toward the household account book icon on the display screen, the read out processing 1203 is started.

When the data read out processing 1203 is executed, the data read out unit 201 is activated.

Hereinbelow, the processings by the data read out unit 201 at respective timings will be explained.

Fig. 13 shows a processing flow of the data read out unit 201, when a card is inserted into such as the IC card control unit 106 and the prepaid card control unit 107. At processings 1301 through 1304, protection of the card is confirmed, and it is judged whether the protection can be released and reading out can be performed. Further, if it is judged there is a protection, "INPUT CODE NUMBER" is displayed on the display screen, and if a code number is inputted by the user and it is confirmed that the inputted code number coincides with the registered one, the protection is released. For the card of which protection is released and which is judged as readable, the account data thereof are read out at processing 1305. The reasons of the protection is to keep privacy of the card holder and to avoid inclusion of account data out of the household account into household account data. Accordingly, instead of placing a protection, one can use a method in which cards permitting automatic reading out are in advance registered in the household account book management system and with regard to cards other than the registered the user is required confirmation or another method in which cards being rejected automatic reading out are in advance registered in the household

account book management system and only non-registered cards are read out.

When it is permitted to read out specific cards as has been explained above, one person can, for example, hold an IC card for private use and an IC card for company use, thereby, the account data in the household account book management system can be managed by separating one for private use and the other for company use.

Further, in the present embodiment, although an example is explained wherein the constitution of the account data stored in a card is determined in such a manner that one dealing corresponds to one line as illustrated in Fig. 10, the present invention is not limited thereto.

Fig. 14 shows a processing flow, when data are read out from such as an account file and other asset file with the data read out unit 201. At processing 1401, a data input operation is detected such as when data in the account file or the asset file are updated or when an icon of the file is superposed with the icon of the household account book by the user, and at processing 1402, the account data are read out from the account file or the asset file. Herein, the account data are likely treated in a manner that one line corresponds to one dealing.

Fig. 15 shows a processing flow of data read in /

line (at processings 1305 and 1402), when reading out is permitted in Fig. 13 or Fig. 14. Further, the present flow shows a processing flow where reading out is performed every one dealing, when the account data format is determined in a manner that one line corresponds to one dealing. In the present processing flow, the processing is performed from the last line, while assuming that respective dealings are aligned along time series. This process is for shortening the processing time while omitting the processing for the account data read out previously, and when a completion flag is off at processings 1503 and 1504 and when the number of lines is more than 1, data analysis / line (processing 1506) and overlap checking (processing 1507) are performed while reading the dealing data by every one line. When reading out at processing 1507 reaches the portion where the account data are read previously, the completion flag is set at on and data not overlapped with the data already entered in the household account book file 112 are entered into the household account book file 112 through the difference entry at processing 1510.

Fig. 17 shows a processing flow of the data read out unit 201, when account data are read out a receipt (electronic receipt) having a form shown in Fig. 4 sent via a network. Like the explanation in connection with Fig. 13, at processings 1701 through

1704 it is judged whether the account data are to be read out or not to be read out, thereafter, when it is judged to be read out, the account data is read out at processing 1705. Further, even if a receipt is in a paper form, if the receipt is converted into image data by such as OCR and the image data are converted into text data, the receipt can be read out like an electronic receipt.

Fig. 18 shows a processing flow in the data read / table (processing 1705) in Fig. 17. At first through processing 1801 the text portion in the account data of the receipt is converted into a two dimensional table format. In this processing a general rule is applied, in that data sandwiched between the beginning of a sentence and the closing of the sentence or a changing line are treated as one line and the data for every section determined by a space or a comma in the one line are treated as one item. With the above rule, text 1 portion in "8/29 BarBee" of the receipt shown in Fig. 4 is converted as shown in Fig. 26 in such a manner that a line is changed by every line change and an item is changed by every space. Thereafter, like the processings in Fig. 16, the data analysis / receipt (processing 1802), the overlap checking (processing 1803) and the difference entry (processing 1804) are performed.

Fig. 19 shows a processing flow in the data read

out unit 201, when account data are manually inputted from the input unit 102. At processing 1902 the account data are inputted through writing into an account table which is predetermined by the user and stored in the memory device. Among the inputted data the data determined not overlapped by the overlap checking (processing 1804) in Fig. 18 are entered in the household account book file 112.

Now, the processing in the data analysis / line (processings 1506 and 1802) shown in Fig. 15 and Fig. 18 will be explained. The present processing corresponds to the processing performed by the data analysis unit 202 in Fig. 2, and wherein the read out data are analyzed, and the read out data in different formats for every money information or for every shop are converted into a unified format including predetermined items while referring to the estimation use data base. Herein, an example of the unified formats is shown in Fig. 40. The present format is constituted by date, note expense item, classification, money amount and remarks. Further, the remarks is constituted by input means, input date and associating input means. The date refers to the date when the dealing is actually performed. The note refers to the content of the dealing, for example, "transfer into bank" and with regard to goods purchase "vegetable". The "expense item" refers to items which

the user can freely set such as "eat-out expense" and "consumption tax". The classification refers to such as income and expenditure. The input means refers to means through which the account data are inputted, therefore, the data read from an IC card is indicated as "IC card, and the data read from the bank account 123 is indicated as "Account 123". The input date refers to the date when the data are read from the input means. When determining the associating input means, for example, with regard to the account data in the IC card, if information is moved from the bank account 123 to the IC card, the "Account 123" stands as the associating input means. Further, a unified format of the present invention is not limited to the one illustrated, but the contents thereof can be freely determined.

The data analysis unit 202 at first refers to the estimation use data file 114 and, if a conversion table with the shop name is registered, uses the registered ones. If not registered, while checking key words and numerals such as "year", "month", "day", "account". "sales", "articles", "¥", "$", "subtotal", "consumption tax" and "total", and the relationships between the numerals, subtotal, total and consumption tax, the data analysis unit 202 estimates data of respective items (date, shop, money amount, expense items, income and expenditure) in the unified format,

and prepares a conversion table with the concerned shop name. For example, the conversion table is prepared in such a manner that the numeral before the "year" represents the concerned year, and after a line of characters representing "articles", "¥" is placed, therefore, a numeral thereafter shows the cost when assuming the line of characters represents article. These conversion tables are stored in the estimation use data file 114.

Further, for the checking of the relationship, it is checked, for example, whether the result determined by multiplying the numeral representing the "subtotal by the current tax rate coincides with the numeral representing the "consumption tax" and whether the total value of the numerals before the "total" coincides with the numeral representing the "total".

When it is uncertain whether the analysis result such as with regard to expense item is correct, a verification flag is set at the account data concerned and then the account data is registered in the verification file 113. Where there is a modification by the user, the estimation use data file 114 is updated in relation to the conversion table and others. Further, even when the concerned conversion table is not registered, if a format information (for example, a first item relates to date, a second item relates to articles and a third item relates to price)

is sent from a shop side, a unified format is prepared according to the information. Further, at this moment the conversion table is registered in the estimation use data file 114.

Fig. 16 and Fig. 20 show processing flows in the data analysis unit 202.

Fig. 16 relates to the format wherein one line corresponds to one dealing as shown in Fig. 10 (b), and shows a data analysis processing flow when the format information is clarified. Herein, for example, since it is clear that the data are the account data read from the IC card control unit 106, by making use of the format information registered in advance and through processings 1601 through 1602 such as date (i), price (i) and article (i) are extracted. Then, at processing 1603 the expense item is determined from the estimation use data file 114, and a rule number applied at this moment is held in rule (i), further, if there are no rules which specify the expense item, a verification flag is set, thereafter, at processing 1604 the data input means and the input date are entered in the remarks (i). In the present example an IC card is entered as the data input means. Through the entry of the data input means, a possible entry of overlapping account data can be prevented. Further, the money information movement within the household account can be separated from that outside the

household account by the entry. Herein the movement inside the household account implies such a case when money information is moved from a bank account to an IC card, and the movement outside the household account implies such as a salary transfer and an expenditure for buying a commodity.

Fig. 20 shows a processing flow, when the format information is unclear. After obtaining such as date (i), price (i) and article (i), a clarified format information is entered together with the shop name into the estimation use data file 114. With this, the data analysis can be performed quickly from the next time.

Processing 2001 in Fig. 20 performs an initialization by turning off the verification flag. In processing 2002, through a general retrieval sequence, items including characters representing "year", "month" and "day" are sought among the character lines for respective items, and at processing 2003 the date is obtained. Herein, the date is obtained from the table shown in Fig. 26, however, if the date is indicated on the receipt, the processing is simplified, when the date is obtained from the receipt. Further, the date is herein indicated together with "year", "month" and "day", however, other than the above in view of a case where the date is sectioned by signs such as periods, the

processings 2002~2003 can be performed to seek items including such signs.

With regard to the extracted date, the validity thereof is confirmed at processing 2004 for reducing errors. When the validity of the extracted date is confirmed, the date is finalized at processing 2005, and if not, through processing 2006 the verification flag is set at on. The validity judgement is performed based on whether the extracted date actually exists in the calendar as well as exists within a predetermined period.

In processing 2007, a variable i which performs counting of lines other than the following space is initialized. In processings 2008 and 2009, the following sequences are performed for all of the items including "¥" from the upper line.

Through processing 2010, price (i), article (i), date (i), expense item (i), payee (i), and remarks (i) are obtained. In this instance, it is assumed that at the first item in the same line the article name is placed and the price is placed in the next item, however, in order to be compatible with the format opposite to above or with other formats, functions which are compatible with a plurality of formats are prepared in advance, and when price (i) and article (i) can not be obtained in processing 2010, a function compatible with other format is called to obtain price

(i) and article (i). The correspondence between the shop names and the functions is registered in the estimation use data file 114 to be able to use a proper function. The expense item (i) is specified by applying a rule with regard to other items including price (i), article (i), date (i) and payee (i) registered in the estimation use data file 114. When there are no rules applicable at this moment, the verification flag is set at on to register the same in the verification file 113.

At processing 2011, if article (i) relates to subtotal, the prices (1~ i-1) on the lines before the present line are totalled through processing 2012, and if the totalled value coincides with the subtotal, the verification flag is set at on through processing 2013. At processing 2014 if the article (i) relates to consumption tax, a value obtained by multiplying the price (i-1) on the line immediately before the present line with the tax rate is determined, and if the obtained value coincides with the value indicated, the verification flag is set at on through processing 2016. In addition, although omitted in the present processing flow, if the article (i) relates to other than article names such as "total" and "correction", correlation between data is checked by making use of these articles. Further, if the article (i) relates to subtotal or consumption tax, the entry flag (i) is

set at off through processing 2017, and if not so the entry flag (i) is set at on through processing 2018. At processing 2019 the counter i is updated. Finally, after completing the processing down to the last line through processing 2008, the data of entry flag (i)= off are excluded from the list including date (i), article (i), price (i), shop name (i), expense item (i) and entry flag (i) and i is also varied to a number excluding the entry flag (i)=on through processing 2020. Thereafter, the processing flow is completed at processing 2021 by determining verification flag (i)=verification flag.

Further, unlike the text characters indicated in the receipt "8/29 BarBee" as shown in Fig. 4, if the receipt is indicated from the beginning in a table form as shown in Fig. 26, a first conversion table between tables and the correspondence between shop name and the conversion table are registered in advance in the estimation use data file 114 to use the same thereafter.

Now, the overlap check (processings 1507 and 1803) as shown in Fig. 15 and Fig. 18 will be explained.

The overlap check unit 203 is for checking whether the account data analyzed in the data analysis unit 202 are already stored overlappedly in the household account book file 112.

Fig. 8 is a display example, when the overlap check unit 203 has determined that the overlapping account data are already stored in the household account book file 112. It is preferable that the user can designate whether an alarm is generated every time when such overlapping is determined.

Fig. 9 shows a general concept of the checking operation performed by the overlap check unit 203. Fig. 9 (a) shows account data which are to be checked with regard to presence and absence of overlaps, Fig. 9 (b) shows the data entered into the household account book file 112. Herein, if the data entered in the household account book file 112 coincide with the account data, the alarm as shown in Fig. 8 is generated and the entry of the data into the household account book file 112 is prevented. If the account data analyzed in the data analysis unit 202 are substantially the same as one entered in the household account book file 112, but include different portions in part, the same are entered into the verification file 113 and a checking by the user is required through the estimation check processing. When requiring such checking, the account data in the verification file 113 and the account data in the household account book file 112 which are presumed overlapping are displayed as illustrated in Fig. 9 so as to permit comparison thereof.

Such overlapping occurs frequency when on one hand the receipt is received from the shop concerned via a network and when on the other hand the account data in the IC card are fetched into the data of the household account book file, and thus through the present overlap checking a possible inconsistency in the household account book can be prevented.

Further, as illustrated in Fig. 10, when money is charged from the bank account into an IC card, the same dealing data both recorded in the account data in the IC card and the account data in the bank account are discriminated, and one of both account data are entered earlier into the household account book file and thereafter the fetching of the other account data is checked.

Fig. 21 shows a processing flow in the overlap checking unit 203. In processings 2101 and 2102, coincidence of date or delay of date at the end of movement after comparing the date at the start of money movement and the date at the end of money movement is judged, and at processing 2103 coincidence of money amount (when such as a fee has to be added, money amount includes the same) is judged. Further, through processing 2104 coincidence of such as article item and notes or a partial coincidence thereof is judged, and at processing 2107 coincidence of data at the start of the movement and at the end of the

movement is judged. Subsequently, it is judged whether the input means entered in the remarks column in the data entered in the household account book file 112 coincides with the input means entered in the remarks column in the account data judged as overlapping. If both judged to coincide each other, the data are determined to be identical to the account data entered in the household account book file 112. Namely, since this implies that the data already read out are again read out, the overlap flag is set at on. If no coincidence is judged, such is understood as data movement within the household account book. Namely, as illustrated in Fig. 10, it is implied that the data are moved from the bank account 123 to the IC card.

Subsequently, at processing 2108 the present data input means is entered in the remarks in the data determined as overlapping and already entered in the household account book file 112. Accordingly, when the user looks at the remarks column, the user knows from where the account data are moved.

Further, as illustrated, for example, in Fig. 10, the dealing "IC card charge" in the note in connection with the dealing record of the bank account 123 is modified in the dealing in IC card MABC *** 1 as "charge", in that not coincide each other, however, if such is once confirmed OK by a managing person, it is

sufficient if a rule that such is thereafter to be dealt as coincidence is registered in the estimation use data file 114. Further, even at a first time, it can be treated as coincidence when a part of character series coincides each other, while setting a verification flag, thereafter, the user may perform checking operation with the estimated portion check unit 205.

The difference entry unit 204 in Fig. 2 is for entering the account data for which the overlap flag is not set at on by the overlap check unit 203 into the household account book file 112.

Fig. 22 shows a processing flow in the difference entry unit 204. Account data of which overlap flag is not set at on are transferred to the difference entry unit 204 in a data order of price (i), article (i) date (i), expense item (i), payee (i) and remarks (i) (wherein i=0~1). In the difference entry unit 204, the entry order is determined according to date order through processings 2201~2203. Among the account data determined according to the date order, the account data of which overlap flag is not set at on are successively entered into the household account book file 112. Herein, in the remarks (i) the input means in the account data is additionally entered.

Through the above processings the read out processing is completed.

Now, the estimation check processing will be explained.

The estimation check processing is initiated, for example, once in a week, at the end of month, when a predetermined amount of data to be checked is accumulated, or when the user commands such checking, of which initiation is designed to be freely set by the user.

When the estimation check processing is initiated, the estimation check unit 205 is activated.

Fig. 5 shows an example of a checking operation performed by the estimation check unit 205. As illustrated in this drawing, the account data entered in the verification file 113 are displayed and when the operator designates the column of the estimation expense item, other expense items are displayed as the candidates thereof. The display indicates that the user intends to change the estimation expense item from "eat-out expense" to "consumption tax". By this change the rule in the estimation use data file 114 is modified as follows.

(Before Checking)

"If shop names are BarBee, Skyrobin, ···, the subexpense item is eat-out expense."

"If it is a consumption tax with regard to the payment for shop names of BarBee, Skyrobin, the subexpense item is eat-out expense."

(After Checking)

"If shop names are BarBee, Skyrobin, ···, the subexpense item is eat-out expense."

"If it is a consumption tax with regard to the payment for the shop names of BarBee, Skyrobin, ···, the expense item is consumption tax.", or

(After Checking)

"If the shop names are BarBee, Skyrobin, ···, the subexpense item is eat-out expense."

"If the expense item is a consumption tax with regard to the payment for eat-out expense, the expense item is a consumption tax.", or further

(After Checking)

"If the shop names are BarBee, Skyrobin, ···, the subexpense item is eat-out expense."

"If it is a consumption tax with regard to payment regardless to its expense item, the expense item is a consumption tax."

Fig. 6 shows account data of the bank account 123, and when preparing a household account book as shown in Fig. 7, rules such as "If the note in the bank account 123 is a home loan, the expense item is a housing expense" and "If the note in the bank account 123 is" water charges", the expense item is a water, electricity and heating expense." are registered in advance in the estimation use data file 114.

Fig. 23 shows a processing flow in the estimation

check unit 205.

For the first time, at the processing 2301 the account data entered in the verification use data file 113 are read out, and then the estimated expense item is displayed.

At processing 2303, it is judged whether the user has performed a correction, and if it was judge a correction was performed, a modification in the estimation use data file 114 is performed (processing 2304). Subsequently, an overlap check processing (2305) is performed with the overlap check unit 203, and the account data are entered into the household account book file 112 through the difference entry unit 204. Further, the correction by the user is performed by setting a correct one in a pull-down menu as illustrated in Fig. 5. When the user approves the content, the user pushes the button of expense item OK, thereby, the correction processing is completed.

When there occurs a user correction, the estimation use data file rewriting unit 207 starts the processing (processing 2304). Through this processing data such as a format and expense item corrected by the user are received, and according thereto the rules for estimating and deciding expense items depending on the conversion table, utilized shop name and utilized IC card registered in the estimation use data file 114 are rewritten. Thereby, the expense item estimation

is correctly performed from the next time.

The estimation use data file 114 keeps rules which convert formats differing in every money information or in every shop into unified formats through the data analysis unit 202.

Namely, the estimation use data file 114 keeps conversion tables used when converting formats differing in every money information or in every shop into unified formats and data for estimation and deciding expense items depending on article items, utilized shop names and utilized IC cards. For example, the following rules are determined in advance.

(1) If the article items are rice, bread, ···, the subexpense item is staple food expense.

(2) If the article items are vegetable, meat, ···, the subexpense item is side dish expense.

(3) If the article items are cabbage, carrot, ···, the article item is vegetable.

·····

(5) If the subexpense items are staple food expense, side dish expense, eat-out expense, ···, the expense item is food expense.

·····

(7) If the shop names are BarBee, Skyrobin, the subexpense item is eat-out expense.

In addition, if such as priority and weight

between the respective rules are determined in advance, a possibility is avoided that the expense item can not be determined, when a plurality of rules are applied. For example, in case when carrot of organic vegetable sold as food stuff at a restaurant having a shop name of BarBee is bought, when the rules (2) and (3) are applied, the subexpense item is determined as side dish expense, and when the rule (7) is applied, the subexpense item is determined as eat-out expense, however, when a priority is given to the rules (2) and (3), the subexpense item is determined as side dish expense. Such priority can be given between items (such as article items and shop names) as well as between expense items (such as side dish expense and eat-out expense).

The processing flow in the estimation use data file rewriting unit 207 will be explained with reference to Fig. 24.

Processing 2401 represents a correction portion of a rule to which a correction is entered. Herein, a new rule is displayed in which the expense item is rewritten into a new expense item. Then, at the processing 2402 it is confirmed to the user whether the correction is acceptable while displaying the old rule together with the new rule, and if it is determined the rewriting is incorrect, the user is required at processing 2403 to rewrite the same again.

The estimation use data file 114 is kept to be rewritable, and when the user performs such as correction of format conversion error and rewriting of estimation items such as expense item, according thereto the conversion tables and data for estimation and deciding expense items based on the utilized shop names and the utilized IC cards are permitted rewriting thereof.

The above explained is the estimation verification checking processing.

Now, the data inquiry processing will be explained. The data inquiry processing is performed in the totaling unit 208. Fig. 25 shows a processing flow in the totaling unit 208. At processing 2501, the user is inquired, for example, through selection of menu whether the outline (totals for every major expense item) is to be displayed. If the answer is yes, the account data entered in the household account book file 112 are totaled so as to display the outline through processing 2502, and if the answer is no, the account data entered in the household account book file 112 are totaled so as to display details which clarify the contents of subtotals (subexpense items or article names). Namely, with regard to the account data entered in the household account book file 112 of the memory device 110 expense items such as major expense items and subexpense items are set by such as

the data analysis unit 202 and the estimation check unit 205. Herein, the totaling unit 208 performs the totaling operation for a predetermined period such as for every week or for every month with regard to respective expense items, and transfers the result thereof to the total display unit 209. Thereby, a household account book is displayed at the display unit 103.

Fig.10 shows a history of account data wherein money information is moved from the bank account 123 to IC card MABC ** 1 and further from the IC card MABC ** 1 to IC card MEFG ** 2. In such instance, only if all of incomes in the income and expenditure section are added up as income and all of the expenses in the income and expenditure section are added up as expense, the added up income and expense differ actual ones, thereby, it is difficult to recognized the household account. Thus, if the account data outside the household account is displayed as illustrated in Fig. 11, the actual income and expense can be recognized. In the totaling unit 208 the account data as illustrated in Fig. 11 are totaled according to the rules in the estimation use data file 114 to display the same. Further, in order to discriminate the movement inside the household account and outside the household account, it is necessary to register rules such as "movement of money information from a bank

account * to IC card MABC ** 1 is one inside the household account" and "movement of money information from IC card MABC ** 1 to IC card MEFG ** 2 is one outside the household account".

Further, when a definition with regard to movement inside the household account and movement outside household account in the household account data is changed by the user, through rewriting the rules in the estimation use data file 114 a fetching operation of the household account data thereafter can be simplified. For example, when rewriting as "movement of money information from IC card MABC ** 1 to IC card MEFG ** 2 is one outside the household account", the movement of money information to IC card MEFG ** 2 can be treated as an expenditure in connection with "subtotal of an allowance for children". Alternatively, for the purpose of discriminating movement inside the household and outside the household, such is defined in advance to deal as relating to an in-household account purse, and for the money movement between in-household account purses is dealt as one inside the household. For example, if the bank accounts 123~143, ones registered in the asset file, IC card MABC ** 1 and IC card MABC ** 2 are defined as the in-household account purses, money movement between the in-household account purses, such as movement of money information from a

bank account * to IC card MABC ** 1 is treated as a movement inside the household account.

Further, in order to recognize the household account easily, it is preferable to introduce subtotals, for this purpose a discrimination rule, for example, "with regard to movement of money information to IC card MEFG ** 2, the expense item is an expenditure as "subtotal of allowance for children"" is registered in the estimation use data file 114. Thereby, in any movement of money information from whichever routes inside and outside the household account, the subtotals thereof can be recognized.

Further, the total display unit 208 is also provided with an inquiry function. The inquiry means to permit data reference while dividing the account data for every bank account and for every card. Fig. 33 shows a state where a household account book is displayed through the data inquiry processing in Fig. 25. Herein, in order to confirm the account data in the bank account 123 with regard to a certain dealing the user designates the column of remarks and as a result a menu of inquiry is displayed. When the user selects an inquiry menu, the account data in the bank account 123 as shown in Fig. 34(a) is displayed. Likely, when an inquiry menu with regard to the dealing in the bank account 123 is selected, the account data in the IC card as shown in Fig. 34(b) can

be referred to, further, when an inquiry menu is selected with regard to the dealing in the IC card, the receipt data as shown in Fig. 34(c) can be referred to. If the receipt data as shown in Fig. 34(c) has already been thrown away, the total as shown in Fig. 34 (c') is displayed in which only the dealings contained in the original receipt data are extracted from the household account data.

Fig. 35 shows the processing flow thereof. At the processing 3501 it is checked whether there is an user designation, if the answer is yes, through processing 3502 the corresponding account data is extracted based on the column of remarks registered in the household account file 112. Namely, since in the remarks column in the account data entered in the household account book file 112, the input means, the date of read in and the related input means for the concerned account data are entered in this order, when retrieving the input means and the date of read in for the concerned account data and extracting coinciding account data, the account data read in from the bank account on the same day can be extracted and which can be displayed as shown in Fig. 34(a). Further, likely in the case of Fig. 34(b), since IC card MABC ** 1 is registered as the input means for the concerned account data, the account data of which read in dates coincide are retrieved and extracted.

Further, while enlarging the system scale further and making use of an internet an inquiry between account data can also be performed. The present inquiry of the account data, for example, includes to notify a user who usually refers to the salary specification administrated at the company's terminal from the home terminal the salary transferring situation into the bank account. The system structure for this instance is shown in Fig. 36. As shown in the drawing, such as a company terminal 3601, a bank terminal 3603, a credit sales company terminal 3605, a shop terminal 3607, a home terminal 3608 and a telephone company 3610 are connected to an internet, and with respect to a salary specification 3602, the account data in a bank account 3622, a use specification 3606, a receipt 3604, an IC card dealing record 3609 and another use specification 3611, the money account information representing a user private information is respectively managed.

Conventionally, since the respective money account information is a private information, it was impossible to connect the respective data through a link, for example, when a user who usually refers to the salary specification 3602 administered at the company terminal 3601 from the home terminal 3608 wants to know the current transferring situation of the salary into the bank account, it was necessary to

take the following steps (1) to verify that the transferring destination is the bank account 3622, (2) to access the bank account 3622, (3) to input a user ID and a pass word, and (4) to search for the salary transfer in the bank account 3622. For this reason, when a user bears a plurality of bank accounts, there was a problem to take time for the steps (1) and (2) or for the step (4).

Therefore, when links 3611~3617 as illustrated in Fig. 36 are formed and if only the user who is very person concerned for the dealings in connection with the account data is permitted to form the links, the user can easily refer to the data and it is prevented for other person to refer to the user private information.

For the above purpose, the inquiry is performed through the steps as shown in Fig. 37~ Fig. 39. At first, an inquiry preparation as shown in Fig. 37 is performed. At processing 3701 an access method for the data corresponding to an inquiry number is determined between an inquiry originated and an inquiry destinated, at processing 3702 the inquiry destinated prepares the data corresponding to the inquiry number, and at processing 3703 an approval of the user is obtained which is the very person concerned for the dealing in connection with the account data corresponding to the inquiry number of

the inquiry destinated. At the processing 3703 as an alternative it is permitted to confirm that the user at the inquiry originated is the same person as the user at the inquiry destinated, for example, it is permitted, if a third person guarantees that the user at the inquiry originated is the same person as the user at the inquiry destinated.

Fig. 38 shows an inquiry flow on the data at an inquiry originated. Through processings 3801 and 3802, name of the user and pass word are verified, and through processings 3803 and 3804 the data are referred to. Thereafter, when an inquiry operation such as pushing an inquiry menu is performed, it is judged whether the inquiry preparation as shown in Fig. 37 has been completed, and if such is judged completed, the inquiry as shown in Fig. 39 is performed, and if not completed, the inquiry preparation as shown in Fig. 37 is performed. Further, it is possible that only the processings 3701 and 3702 in Fig. 37 are completed with regard to the inquiry originated and the inquiry destinated, and thereafter only the processing 3703 is performed at processing 3808 in Fig. 38.

Fig. 39 shows an inquiry flow on the data at the inquiry destinated. Through processings 3901 and 3902 the name of user and the pass word are verified, and through processing 3903 it is verified that the name

of user corresponds to the very person concerned to the dealing of the inquiry number. If the user name information is included in the inquiry number, it is unnecessary to input the name of user. Until completing the processing at processing 3904 the data reference is continued at processing 3905.

The verification of the name of user and the pass word at the processings 3901 and 3902 in Fig. 39 can be omitted, however, in such instance, it is necessary to confirm that the person bearing the user name inputted in the processing 3801 in Fig. 38 is the very person bearing the user name to be inputted in Fig. 39. This is for preventing another user (such as a concerned accountant) who is permitted to refer to the salary specification 3602 from referring to the contents in the bank account 3622. For example, if an approval is required in processing 3703 for the inquiry preparation as shown in Fig. 37, such can be prevented.

Above explanation relates to the data reference processing.

Finally, the automatic dealing unit 206 in the managing unit 104 will be explained.

The automatic dealing unit 206 performs automatically payment and receipt of money based on a predetermined condition. For example, reception or payment of money information from a predetermined

business unit such as a bank at a predetermined date and in a predetermined amount is performed automatically via an IC card or a network.

This is realized in such a manner that planned dealings are filled in such as in a unified formal, are approved by a manager in advance and the payment operation is performed at the time when the payment is demanded or at a predetermined date and time. At this moment if the amount of payment is not stored in the money information via the IC card or the network, or contrary no or insufficient hardware to stored the receiving amount is prepared, such is notified to the manager. Such can be notified in advance or may be notified only the fact that such transfer could be performed at the planned date and time.

Further, when filling in the planned dealings in the unified format, in case that there are a written estimate and a written claim which were sent from the side of shops, if the written estimate is analyzed with the function in the data analysis unit 202, and converted into a planned account data in the unified format to verify the same by the user, such can eliminate time for the operation and is convenient. The operation for the above is performed, for example, as follows;

(1) After selecting icons such as a written estimate and a written claim and superposing the same

on icon of "automatic dealing".

(2) After selecting icons such as a written estimate and a written claim and selecting menu of "automatic dealing".

With regard to approving methods, there are three methods, a method in which approval is effected only through the above (1) or (2), a method in which an approval by the user is required in the menu of "automatic dealing" or in the menu of "automatic dealing approval" and a method of combining the above two. In the combined method, under a predetermined condition it is presumed that an approval is effected only by the operation (1) or (2), and other than that an approval is required to the user. The predetermined condition includes such as amount of money, article name, shop name and interval from the previous use date to the date of payment, and, for example, the condition is determined in advance as follows, "If name of article: rice, name of shop: ** rice shop, interval from the previous use date to the payment data: not less than two weeks, amount of money: less than 2780 yen, it is assumed that the approval is effected only by the operation (1) or (2).

After executing the dealing, the concerned dealing data are fetched into the household account data, however, even before execution of the dealing, if such is fetched as a budget into the household

account data, a simulated total can be shown to the manager. If such simulation total can be obtained before effecting approval, the household account management can be performed easily.

In the above, the contents of the home use terminal 100 has been explained in detail, and now the shop terminal 150 will be explained. The basic structure of the shop terminal 150 is as same as that of the home use terminal 100 as shown in Fig. 1, however, the shop terminal 150 is in addition provided with terminals for connecting to a POS terminal.

Fig. 4 shows an example of a receipt and a point file received from a shop. The present example is presumed to be constituted by image data and text data in HTML format. When pushing a menu guidance button, it is designed to be able to access home pages of shops on an internet and the home pages are devised so that the user wants to dine at the restaurant.

Since the shops can take advantage of an opportunity when the customers check the respective receipts to advertise themselves so as to induce subsequent sales, the shops are required to solve the following problems when issuing the account data in a form of receipt (1) through which individuality of respective shops are demonstrated and (2) which is designed in a format acceptable by the users.

For this purpose the following method is

conceived, in that non-restricted format in user readable expression such as an HTML format is to be used. Alternatively, while using a simple format, a receipt viewer unique to the shop concerned can be added. Based on the decision system at the side of shops, such receipt can be designed to be issued freely.

Fig. 27~Fig. 31 show processing flows at the shop terminal 150 in Fig. 1. The shop terminal 150, for example, issues the receipt data as shown in Fig. 4. Therefore, the function added to a general shop terminal and the processing thereby will be explained.

Fig. 27 shows a processing flow in a main processing at the shop terminal 150. Until the respective operations by the user are initiated at processings 2701 and 2702, the following processings stand by. When at processing 2702 the user starts a certain operation, the respective processings are performed. At first, when selling a commodity to a customer, a sales menu, but is selected and the processings 2703~2705 are performed. Alternatively, without selecting the sales menu through connecting operation with the POS system the processing 2703 and the followings can be initiated. At the processing 2703, the amount of money to be paid to the customer is calculated based on the commodity to be sold and the price thereof. Then, through processing 2704 a

receipt is prepared based on the dealing information, and at the processing 2705 the receipt is issued. For example, when the payment is performed through an IC card, the receipt data are written in the IC card of the customer.

Further, when a menu of receipt designing is selected at processing 2706, the receipt can be designed. Further, after completing once sales dealing and when there occurs a change such as refund, a refund processing is performed at processing 2707. Still further, other than the above, with regard to other processings not relating to the issuance of receipts such as an inventory management at the shop concerned, a similar processing as performed at a general shop terminal and a POS terminal as disclosed, for example, in JP-A-5-174274 is performed at processing 2708.

Fig. 28 shows a processing flow for the refund processing in the shop terminal 150. The processings 2801~2803 are as same as the processings 1801~1803 in Fig. 18, in that for the first time at processing 2801 the receipt data of the customer are read in, the data are analyzed at processing 2802 and at processing 2803 an overlapping portion between the receipt and the sales record of the shop, namely a coinciding portion is checked. If it is found out an overlapping portion at the processing 2804, it is judged that the customer

bought the commodity at the shop concerned, therefore, through processings 2805~2807 the refund processing is performed. Herein, a receipt in the form shown in Fig. 4 is explained, however, even for the dealing data as shown in Fig. 6 if an overlapping portion between the receipt and the sales record in the shop concerned, namely a coinciding portion is checked according to the sequence as shown in Fig. 15, like refund processing can be performed.

Fig. 29 shows an operation flow for receipt designing at the shop terminal 150, and if at processings 2901 and 2902 there are no image logos for the shop, an image logo is prepared by making use of a general tool for preparing image data. Then, through processings 2903~2907 the contents and display positions of the respective data are determined. The order of the processing 2903~2907 can be modified. Through the processing 2904 the position of dealing is set, however, since the contents of the data are prepared for every dealing, only the display position is set here (refer to text 1 in Fig. 4). At the processing 2905, the position and contents of the advertising data are set (refer to text 2 in Fig. 4).

Through the processing 2904 in Fig. 29 the position and kinds of other data are set. For example, when the data like BarBee point in Fig. 4 is desired to be included in a part of the receipt data,

the position thereof is set in a separate file and the kinds thereof is set so as to call a program which seeks a file with regard to the BarBee point in the user IC card, reads a point number until now and renews the point number by adding points created by the instant purchase, although the points can be included in the same file as for the receipt data, however, it is preferable to be included in a separate file other than that for the receipt, because the customer scarcely throws it away by mistake and the shop can easily confirm the presence and absence of the point file. Further, when private information of customers such as birthday thereof is stored in the shop terminal, it is possible to set to generate the receipt data based on such information or to set to generate win and blank data for lotteries by making use of a random function. For dealings not required to prepare data content for every dealing, the contents thereof are set directly. Through processing 2907 the position and form of a menu for accessing a relating home page are set (refer to a menu guidance button in Fig. 4), and by including URL information in the receipt data and by setting to access the same through a single button, the customer can very easily access the home page which can be expected for the shop concerned to create a great advertising effect for inducing sales again.

At processing 2908, based on the contents and the display position of the respective data determined through the processings 2903~2907 a frame data of the receipt for a portion of which data contents are not required to prepare for every dealing is prepared, and further format information for analyzing the receipt data is prepared. Finally, at processing 2909 a completed format is displayed for approval by the user.

Fig. 30 shows an operation flow for preparing a receipt in the shop terminal 150. At processing 3001 the frame data for the receipt prepared through the steps in Fig. 29 is called. Through processing 3002 dealing data are added, and further through processing 3003 other data produced in every dealing are generated and added.

Fig. 31 shows an operation flow for issuing a receipt in the shop terminal 150. At processing 3101 a receipt data are issued. At processing 3102 although format information is issued, however, at this instance if the dealing is one via an IC card and for the IC card a format information for the receipt to be issued is already determined, further format information is not issued.

In the above, the shop side terminal has been explained.

In Fig. 36, the instance where an inquiry between

the account data by making use of such as an internet has been explained, however, the like system can be provided for other private information than the account data such as family registration information, school record, test results and servicing information such as telephone.